

**COMMONWEALTH OF VIRGINIA**  
**Department of Environmental Quality**  
**Valley Regional Office**

**STATEMENT OF LEGAL AND FACTUAL BASIS**

Transcontinental Gas Pipe Line Corporation  
Compressor Station 175  
Scottsville, Fluvanna County, Virginia  
Permit No. VRO40789

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Transcontinental Gas Pipe Line Corporation has applied for a Title V Operating Permit for its natural gas compressor station, located in Scottsville, Fluvanna County, Virginia facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact: \_\_\_\_\_

Date: \_\_\_\_\_

Air Permit Manager: \_\_\_\_\_

Date: \_\_\_\_\_

Regional Permit Manager: \_\_\_\_\_

Date: \_\_\_\_\_

## **FACILITY INFORMATION**

### Permittee

Transcontinental Gas Pipe Line Corporation  
P. O. Box 1396  
Houston, Texas 77251-1396

### Facility

Compressor Station 175  
Transcontinental Gas Pipe Line Corporation  
P. O. Box 1396  
Houston, Texas 77251-1396

AIRS ID No. 51-065-0016

## **SOURCE DESCRIPTION**

SIC Code: 4922 – Natural Gas Transmission

Transco is an interstate natural gas transmission company. Transco's 1,900-mile pipeline system transports natural gas from production areas in the Gulf Coast region to customers along the eastern seaboard. Transco's compressor stations are used to compress and move the gas along the system. Compression is made possible through the application of natural gas-fired, internal combustion, reciprocating compressor engines. According to a 1990 registration update for this source, the facility was placed in service in 1960.

The facility is a Title V major source of NO<sub>x</sub>, VOC, and CO. This source is located in an attainment area for all pollutants, and is a major source based on its potential to emit. The facility is an existing source.

## **COMPLIANCE STATUS**

The facility is inspected once a year. The facility was determined to be in compliance during the 1999 and 2000 inspections. The source certifies in the Title V application that the source is in compliance.

## **EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION**

The emissions units at this facility consist of the following:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
M01	001	Cooper-Bessemer LSV-16SG Internal Combustion Reciprocating Engine, Rated at 4400 Hp. Constructed before 1972.	37 MM Btu/hr	-	-	-	N/A
M02	002	Cooper-Bessemer LSV-16SG Internal Combustion Reciprocating Engine, Rated at 4400 Hp. Constructed before 1972.	37 MM Btu/hr	-	-	-	N/A
M03	003	Cooper-Bessemer LSV-16SG Internal Combustion Reciprocating Engine, Rated at 4400 Hp. Constructed before 1972.	37 MM Btu/hr	-	-	-	N/A
M04	004	Cooper-Bessemer LSV-16SG Internal Combustion Reciprocating Engine, Rated at 4400 Hp. Constructed before 1972.	37 MM Btu/hr	-	-	-	N/A
AUX01	005	Ingersoll Rand PSVG-8 Natural Gas internal combustion reciprocating auxiliary electric power generator. Constructed before 1972.	5.5 MM Btu/hr	-	-	-	N/A

\*The Size/Rated capacity is provided for informational purposes only, and is not an applicable requirement.

## EMISSIONS INVENTORY

A copy of the 1999 Annual Emissions Update/Emissions Statement and Certification form for Transcontinental Gas Pipe Line Corporation (Transco) is attached as Appendix A. Emissions are summarized in the following tables.

Emissions Unit	1999 Actual Emissions				
	Criteria Pollutant Emission in Tons/Year				
	VOC	CO	SO <sub>2</sub>	PM-10	NO <sub>x</sub>
M01 Engine	4.7	12.6	0.01	1.0	126.0
M02 Engine	8.5	22.7	0.02	1.8	227.2
M03 Engine	5.6	15.1	0.02	1.2	150.7
M04 Engine	7.6	20.2	0.02	1.6	202.7
AUX01 Generator	0.9	0.4	-	-	2.7
Total	27.3	71.0	0.07	5.6	709.3

As of the date of the Title V permit application, the source indicates they do not have an accurate method of determining HAP emissions from the facility. Revised AP-42 emissions factors for four-stroke lean burn engines were published in July 2000 (Table 3.2-2). Formaldehyde emissions for the facility during 1999 are estimated to be: 270 mmcf/yr x 5.28E-2 lb/mmbtu x 1000 mmbtu/mmcf = 7.12 tpy. All other emission factors for HAPs are an order of magnitude smaller than the one for formaldehyde, therefore no HAP emissions are listed for this source type. The MACT for large reciprocating engines has not been promulgated and actual emissions of formaldehyde are estimated to be less than 10 tons per year, therefore HAP emissions have not been included in the Title V permit.

### 1999 Facility Hazardous Air Pollutant Emissions

Pollutant	Hazardous Air Pollutant Emission in Tons/Year
Formaldehyde	Estimated at 7.1

### EMISSION UNIT APPLICABLE REQUIREMENTS - [emission units M01 through M04]

This facility is an existing source, therefore there are no permitted emission limits for these emission units.

### Limitations

The following Virginia Administrative Codes have specific emission requirements that have been determined to be applicable:

III.A.1 (9 VAC 5-40-280 B, Article 4)

Sulfur dioxide emissions from the operation of the emission units M01-M04 and AUX01 shall not exceed 2.64K pounds per hour per unit, where K equals the actual heat input at total capacity expressed in Btu x  $10^6$  per hour.

Calculated SO<sub>2</sub> emission limit per unit :  $2.64 \times 37 = 97.7$  pounds SO<sub>2</sub> per hour per unit.

Calculated SO<sub>2</sub> emission limit for the four engines combined:  $97.7 \times 4 = 390.7$  pounds SO<sub>2</sub> per hour.

### III.A.2 (9 VAC 5-40-80 and 9 VAC 5-80-110)

In accordance with 9 VAC 5-40-80 and 9 VAC 5-80-110 emission units at this source are limited to 20% stack opacity, except during one six-minute period in any one hour in which visible emissions shall not exceed sixty (60) percent opacity.

### III.A.3 (9 VAC 5-80-110 B.1)

This facility is constructed to burn pipeline quality natural gas only. Inclusion of this condition in accordance with 9 VAC 5-80-110 B.1, along with fuel consumption records, assures compliance with the SO<sub>2</sub> emission limit in III.A.1.

### III.A.4 (9 VAC 5-40-20 E and 9 VAC 5-80-110)

In accordance with 9 VAC 5-40-20 E, at all times, to the extent practicable, the permittee shall maintain and operate the affected facility in a manner consistent with air pollution control practices for minimizing emissions.

## Monitoring

Condition III.A.1 limits SO<sub>2</sub> emission to the calculated values of 97.7 lbs/hour/unit and 390.7 lbs/hour for four engines.

Pipeline quality natural gas contains no more than 0.065% wt sulfur.  $(20 \text{ grain S}/(100 \text{ scf nat gas}) \times 1 \text{ scf nat gas}/0.044 \text{ lb nat gas})$

Actual hourly emissions of SO<sub>2</sub> are:  $37 \text{ mmbtu/hr} \times 10^3 \text{ cf/mmbtu} \times 0.044 \text{ lb nat gas/scf nat gas} \times 0.00065 \text{ lb S/lb nat gas} \times 2 \text{ lb SO}_2/\text{lb S} = 2.1 \text{ lbs SO}_2/\text{hour}$

The margin of compliance for each compressor engine is  $1 - (2.1 \text{ lbs SO}_2/97.7 \text{ lbs SO}_2) = 97.8\%$   
It is highly unlikely that the unit will exceed the hourly SO<sub>2</sub> emission limit, therefore additional periodic monitoring is not required to demonstrate compliance.

This facility is an existing source, therefore its annual emission limits are its annual potential-to-emit (PTE) at 8760 hours of operation. Additional periodic monitoring is not required to demonstrate compliance.

Opacity periodic monitoring has not been required for the engines (M01-M04) and the generator (AUX01) since the emission units burn pipeline quality natural gas. Natural gas is a clean burning fuel and produces little or no particulate matter when the engine units are properly maintained and operated.

## **Recordkeeping**

### **III.B.1 (9 VAC 5-40-50 and 9 VAC 5-80-110 F)**

The permit includes requirements for maintaining records. These records include monthly and annual fuel consumption for each emissions unit and records of malfunctions.

### **III.B.2 (9 VAC 5-40-20 E and 9 VAC 5-80-110)**

Permit condition III.B.2 (9 VAC 5-40-20 E) specifies the type of information that may be used to support the permittee's claim that the emission units are properly maintained and operated; there is not an applicable requirement specifying that this information be reported to DEQ. Note the burden of proof is placed on the permittee to demonstrate the engine units are properly operated and maintained. Records must be kept a minimum of five years.

## **Testing**

The permit does not require source testing.

### **III.C.1 (9 VAC 5-40-30 and 9 VAC 5-80-110)**

DEQ may request that test ports be provided on exhaust stacks. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

### **III.C.2 (9 VAC 5-80-110)**

The table lists the test methods to be used if emissions testing is performed at a later date.

## **Reporting**

Reporting requirements are contained in the General Provisions of the permit.

## **Streamlined Requirements**

The draft Title V permit contains no streamlined permit conditions.

## **INSIGNIFICANT EMISSION UNITS**

In accordance with 9 VAC 5-80-720, insignificant emission units are listed in a table in the permit.

## **PERMIT SHIELD & INAPPLICABLE REQUIREMENTS**

The permit shield is in effect for this facility. No inapplicable requirements are listed in the permit application or draft permit.

## **GENERAL CONDITIONS**

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110, that apply to all Federal operating permit sources. These include requirements for submitting semi-annual

monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions, including those caused by upsets, within one business day.

#### STATE ONLY APPLICABLE REQUIREMENTS

None are identified in the draft permit.

#### FUTURE APPLICABLE REQUIREMENTS

Using emission factors from AP-42 for four cycle engines, this source's potential-to-emit makes the source major for formaldehyde HAP emissions. The estimated annual PTE for the facility is 34.2 tons of formaldehyde per year. The Maximum Achievable Control Technology standard (MACT) for internal combustion engines, 40 CFR Part 63 Subpart ZZZZ and 9 VAC 5 Chapter 60, was scheduled to be released as a proposed rule in August 2001. The release has not occurred as of the writing of this statement of basis. The facility may be subject to this requirement when Subpart ZZZZ is promulgated.

#### INAPPLICABLE REQUIREMENTS

No inapplicable requirements are identified by the applicant.

#### INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance, as they may apply, with all requirements of the Clean Air Act. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation <sup>1</sup>	Pollutant Emitted (5-80-720 B.)	Rated Capacity (5-80-720 C.)
IA2	Waukesha XAH – 328C Air Compressor, natural gas fired	9 VAC 5-80-720 C.	N/A	1.0 MM Btu/hr
IA3	Vulcan VWA-25 Natural Gas-Fired Space Heater	9 VAC 5-80-720 C.	N/A	3.2 MM Btu/hr
IA4	Miscellaneous Storage Tanks	5-80-720 B.	VOC	N/A
	Lube Oil			11,600 gal
	Accessory Oil			6,000 gal
	Used Oil			3,000 gal
	Natural Gas Condensate			2,000 gal
	Natural Gas Condensate (portable)			367 gal
	Lube Oil (Settling Sump)			1,400 gal
	Accessory Oil (Settling			530 gal

Emission Unit No.	Emission Unit Description	Citation <sup>1</sup>	Pollutant Emitted (5-80-720 B.)	Rated Capacity (5-80-720 C.)
	Sump) Wastewater Ethylene Glycol/Water (Jacket Water Surge) Ethylene Glycol/Water (LOCW Surge) Ethylene Glycol/Water (JW Drain & Fill) Ethylene Glycol Ethylene Glycol/Water (JW Sump)			8,820 gal 9,000 gal  2,250 gal  2,000 gal  2,000 gal 159 gal
IA5	Fugitive Emissions	5-80-720 B.	VOC	N/A
IA6	Parts Washer	5-80-720 B.	VOC	N/A

<sup>1</sup>The citation criteria for insignificant activities are as follows:

9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application

9 VAC 5-80-720 B - Insignificant due to emission levels

9 VAC 5-80-720 C - Insignificant due to size or production rate

## CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

## PUBLIC PARTICIPATION

A public notice regarding the draft permit was in the December 17, 2001 edition of The Daily Progress. Public comments will be accepted from December 17, 2001 through January 16, 2002.



**Appendix A**

**1999 Annual Emissions Update, Emissions Statement, and Certification Form for  
Transcontinental Gas Pipe Line Corporation  
Compressor Station 175**

**Appendix B**  
**Supporting Documentation for**  
**Statement of Basis**